



Appl. No.: 10/646,036
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PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1.-12. (canceled)

13. (currently amended) A network system comprising:

a computer;

a switch that is coupled to said computer via a network;

a first storage device that is coupled to said switch via the network, said first storage device storing first data; and

a second storage device that is coupled to said switch via the network;

wherein said computer issues a first read request for the data stored in said first storage device;

wherein when said switch receives said first read request, if said second storage device has second data that is copy data of said first data, said switch converts said first read request into a second read request for said second data, and transmits said second read request to said second storage device via the network, ~~whereas~~ wherein if said second storage device does not have said second data, said switch transmits said first read request to said first storage device via the network; and

wherein when receiving the data, said switch transfers the received data to said computer as said first data from said first storage device.

14. (previously presented) A network system according to claim 13,

wherein said switch has information of whether or not said second storage device has said second data, and said switch determines a destination of the read request in accordance with said information.

15. (previously presented) A network system according to claim 13,

wherein said switch transmits the read request to either said first storage device or said second storage device via the network in accordance with information related to presence of said second data.

16. (previously presented) A network system according to claim 13, wherein said first storage device comprises a network interface coupled to said network and a processor coupled to said network interface, said processor reading said first data in accordance with said first read request and transmitting said first data back to said switch through said network interface and said network.

17. (previously presented) A network system according to claim 13, wherein:

said first storage device includes a plurality of addressable storage areas for storing said first data, while said second storage device includes a plurality of addressable storage areas for storing said second data;

said first read request includes a first destination address where said first data resides; and

if said second storage device has said second data, said switch changes said first destination address to a second destination address, where said second data resides, to be incorporated into said second read request.

18. (previously presented) A network system according to claim 13, wherein:

said second storage device further includes third data that is not copy data of said first data; and

when said computer issues a third read request for said third data via the network, said switch receives said third read request and transmits said third read request to said second storage device via the network.

19. (previously presented) A network system according to claim 13, wherein said switch has information of whether or not said second storage device has said second data, and if said second storage device does not have said second data, said switch transfers said first data received from said first storage device to said second

storage device in response to said first read request, and said switch updates said information to indicate that said second storage device has as said second data the copy data of said first data currently requested by said computer.

20. (previously presented) A network system according to claim 19, wherein when said switch has found that an amount of free storage capacity in said second storage device is not enough to store said first data to be transferred, said switch obtains an amount of storage area in said second storage device sufficient for storing said first data to be transferred in such a manner that said switch chooses a storage area occupied by data with the least frequency of use by said computer from among all of said second data in said second storage device.

21. (currently amended) A switch to be coupled to a computer, a first storage device and a second storage device via a network, said first storage device storing first data, said switch comprising:

- a port unit to be coupled to said network;
- a converter for converting commands and data received by said port unit; and
- a switch unit for relaying said command and said data toward a destination of said data in accordance with address information thereof;

wherein when said port unit receives a first read request for said first data from said computer via the network, if said second storage device has second data that is copy data of said first data, said converter converts said first read request into a second read request for said second data, and said switch unit transmits said read request to said second storage device through said port unit, ~~whereas~~ wherein if said second storage device does not have said second data, said switch unit transmits said first read request to said first storage device through said port unit without being converted by said converter; and

wherein when receiving the data, said switch unit transfers the received data to said computer as said first data from said first storage device.

22. (previously presented) A switch according to claim 21, wherein:
said first storage device includes a plurality of first storage areas where said first data resides, and a first controller to read said first data from said first storage area and to

send a first response which includes said first data and a first initiator identifier for identifying said first storage device, back to said switch through said network;

said second storage device includes a plurality of second storage areas where said second data resides, and a second controller to read said second data from said second storage area and to send a second response which includes said second data and a second initiator identifier for identifying said second storage device, back to said switch through said network;

when said switch receives said first response through said port unit, said switch unit transmits said first response as a reply to said first read request, through said port unit and said network;

when said switch receives said second response through said port, said converter converts said second response into a third response which includes said second data and said first initiator identifier instead of said second initiator identifier; and

said switch unit transmits said third response as a reply to said first read request, through said port unit and said network.